



## **ECONOMICS**

# **THE ECONOMICS OF MEASURING FISCAL DECENTRALISATION**

## **PART I: AN OVERVIEW OF RECENT INSIGHTS INTO FISCAL DECENTRALISATION**

**By**

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**DISCUSSION PAPER 08.13**

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**PART I:  
AN OVERVIEW OF RECENT INSIGHTS  
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<sup>1</sup> This paper comprises the front matter and Chapters 1 and 2 of my PhD thesis, *The Economics of Measuring Fiscal Decentralisation*, The University of Western Australia, 2008. The full thesis is available as Discussion Papers 08.13 to 08.16.

*To my parents:  
To whom this thesis is dedicated.*

## **ABSTRACT**

This thesis investigates economic aspects of the measurement of fiscal decentralisation to establish how a nation's fiscal arrangements can be consistently measured, so they can be compared internationally. A new index of fiscal decentralisation is developed that reflects two key elements of the theory of fiscal decentralisation: the fiscal autonomy of subnational governments; and their fiscal importance. The role of fiscal inequality in subnational governments' public finances is also considered.

The thesis consists of nine chapters which are distinct but closely related. These nine chapters can be divided into the three "building blocks":

- An overview of the economics of fiscal decentralisation, which lays the foundation for the development of the fiscal decentralisation index.
- The development of a new fiscal decentralisation index ("FDI"). This FDI reflects fundamental aspects of the economics of fiscal decentralisation and provides the basis for consistent international comparisons.
- The measurement of the degree of fiscal decentralisation in the cases of Vietnam, China, and other selected ASEAN nations. This application is, in large part, a response to the calls from international organisations for developing countries to pursue policies that increase fiscal decentralisation.

The thesis makes three contributions to the literature: (i) the development and application of a new index of fiscal decentralisation; (ii) the development of a framework for the analysis of subnational fiscal inequality that can also be included in fiscal indices in the future studies; and (iii) the identification of policy implications for fiscal decentralisation reforms in Vietnam.

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## THE THESIS FORMAT

This thesis consists of nine chapters, including the “Introduction” and “Conclusion” chapters. Each chapter has been written in a more or less self-contained way for readers’ convenience. As a result, some repetition of relevant material between chapters, figures, and tables is unavoidable. However, this repetition is kept to a minimum.

A typical chapter contains a number of sections. A list of references is at the end of the thesis. Some chapters contain appendices. The sections and appendices in each chapter are numbered at two levels: X.Y for sections and AX.Y for appendices. For the section, the first level, X, indicates the Chapter X, whereas the second level indicates the order of occurrence of the section within the chapter. Similarly for appendices, the first letter A means “Appendix”.

Equations within the chapter are also labelled by two levels in the bracket (Y.Z). It is important to note that the chapter level, X, does not enter into the numbering of the equations. For example, equation (Y.Z) means that it is the  $Z^{\text{th}}$  equation in Section X.Y. In some cases, when we have to refer to the equation in another chapter, we use the terminology of “equation (Y.X) in Chapter X”.

A similar way of labelling tables and figures is applied, such as Table X.W, where W refers to the order of occurrence of the table/figure within Chapter X.



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Material related to one of the chapters in the thesis, Fiscal decentralisation in China and selected ASEAN nations, was originally published in an edited book by Associate Professor Yanrui Wu (UWA); see Vo (2005). I am grateful to Dr Wu for his kind help and constructive comments. Proofreading a thesis is a difficult task, and I am extremely grateful for the assistance from Phuong Ngo (Roche Pharmaceutical Company), James Fogarty (UWA), Rachel Hoare (Society of Editors, Western Australia),

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## CHAPTER 1

### INTRODUCTION

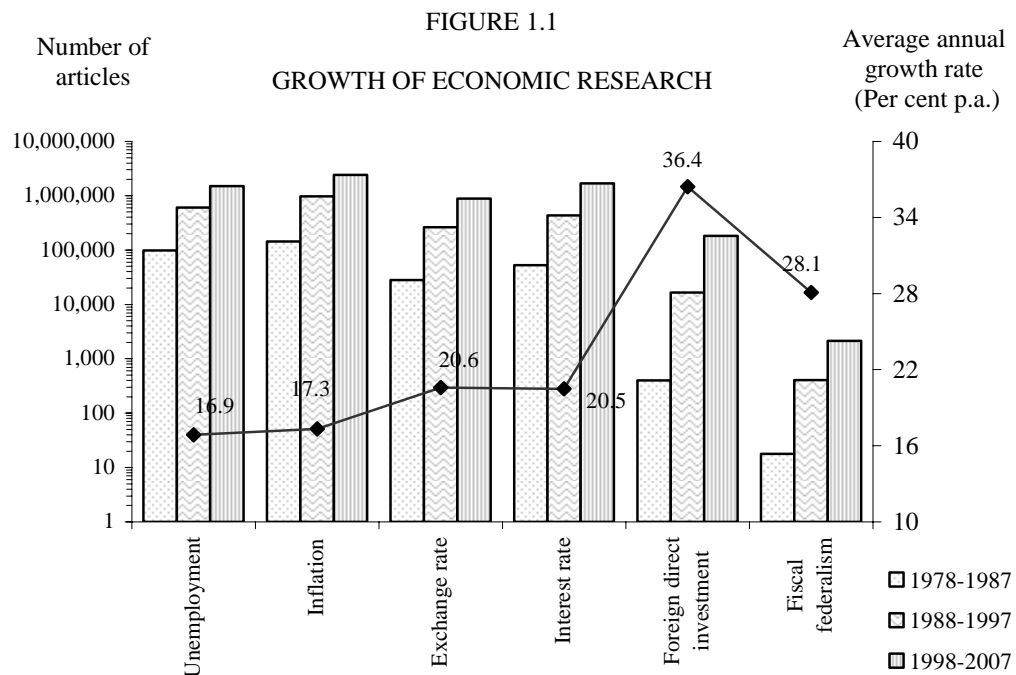
*“Decentralisation has, not only an administrative value, but also a civic dimension, since it increases the opportunities for citizens to take interest in public affairs; it makes them get accustomed to using freedom. And from the accumulation of these local, active, pernickety freedoms, is born the most efficient counterweight against the claims of the central government, even if it were supported by an impersonal, collective will.”*

A. De Tocqueville (1805-1859)  
in “A History of Decentralisation”, World Bank (2003)

The term “fiscal decentralisation” refers to the devolution of authority for public finances and the delivery of government services from the national to subnational levels (Tanzi, 1996). This devolution is related to the four main interrelationships among levels of government regarding fiscal issues, viz., the responsibility for (i) expenditure decisions; (ii) taxing and revenue-raising powers; (iii) subnational borrowings; and (iv) intergovernmental fiscal transfers. Fiscal decentralisation is currently an issue of considerable practical importance facing many developing economies and has been advocated by international economic bodies, such as the World Bank and the Organisation for Economic Cooperation and Development (World Bank, 2003). Moreover, the academic study of fiscal decentralisation is a field of vigorous research activity and a number of attempts have been made to systematically understand the key economic principles of this area (see, e.g., Bird, 2004; Boadway, 2003; Collins, 2001; McLure, 1998).

As one way to measure professional interest in the area of “fiscal federalism”, the field of study within which fiscal decentralisation falls, the number of publications of articles can be used. As a benchmark for the purpose of comparison, we use the number of publications in five other fields of economic research, viz., “unemployment”, “inflation”, “exchange rate”, “interest rate”, and “foreign direct investment”. As these five fields are much broader than fiscal federalism, we should expect that the number of

publications on those topics to be much larger than for fiscal federalism. But this difference in scale disappears if we use changes over time. Figure 1.1 plots on the left-hand axis the number of articles published which include at least one of these six fields in their key words. The three bars for each field indicate the number of publications in three consecutive decades. As the left-hand axis uses a logarithmic scale, the change in the height of the bars from one decade to the next indicates the growth rate in publications. Thus, for unemployment, for example, the average annual rate of growth in publications over the three decades is about 17 per cent, which is read with respect to the right-hand axis. The number of publications in fiscal federalism is much smaller than those for the other topics, as expected, but the area is growing rapidly. In fact, with an average growth rate of about 28 per cent per annum, fiscal federalism is the second-fastest growing field.



Note: The average annual growth rates are the logarithmic differences in the number of publications from one decade to the next, divided by 10.

Source: <http://global.factiva.com/ha/default.aspx>. Keyword search conducted in January 2008.

A persistent challenge in this field concerns the measurement of the degree of fiscal decentralisation in a manner that conveys an accurate signal of fiscal arrangements and is consistent with the theory of fiscal decentralisation. This thesis develops indices

that meet these challenges and take into account the two main issues of fiscal decentralisation: (i) the fiscal autonomy of subnational governments (hereafter SNGs), the extent to which subnational expenditure is funded by subnational own-sourced revenue; and (ii) the fiscal importance of subnational governments, the extent to which national fiscal activities are undertaken by SNGs. These indices also reflect the impact of intergovernmental fiscal transfers, and ideas associated with “fiscal inequality” of the distribution of revenue and expenditure.

The structure of this introductory chapter is as follows. Section 1.1 discusses previous approaches to measuring fiscal decentralisation. Section 1.2 presents a brief overview of our indices of fiscal decentralisation. The application of these indices is illustrated with numerical examples in Section 1.3. The contributions of the study are summarised in Section 1.4, and Section 1.5 sets out the structure of the thesis.

## 1.1 Measuring fiscal decentralisation

In recent decades, fiscal decentralisation has become a central concern in countries around the world, especially in developing nations such as Argentina, Bolivia, Brazil, Colombia, Ethiopia, India, Mexico, and Nigeria; and countries in transition such as Bulgaria, China, Hungary, and Russian Federation (IMF, 1997; Bird, 1993). Fiscal arrangements among levels of government have been reformed in a manner that increases the extent to which SNGs are assigned more expenditure and revenue-raising responsibilities. There is, however, a lack of a widely-accepted tool to measure the degree of fiscal decentralisation across countries. In previous studies, typically either revenue or expenditure from subnational governments is used without taking into account the fiscal autonomy of SNGs. For example, in his pioneering study, Oates (1972) uses the national government’s share in total public revenue as the degree of fiscal centralisation. More recently, Woller and Phillips (1998) measure fiscal decentralisation in one of four ways:

- the ratio of local government revenues to total government revenues
- the ratio of local revenues less grants-in-aid to total government revenues
- the ratio of local expenditures to total government expenditures

- the ratio of local government expenditures to total government expenditures less defence and social security expenditures.

Similar measures of fiscal decentralisation can be found in Thieben (2003), Akai and Sakata (2002), Lin and Liu (2000), Yilmaz (1999), Davoodi and Zou (1998), and Zhang and Zou (1998), to name a few. None of these measures consider the autonomy of SNGs in their fiscal activities. In short, the linkage between “theory” and “measurement” is poor in much of the current literature.

Our research is designed to bring about closer matching of the theory and measurement of fiscal decentralisation. The specific goals of this study are to:

- develop an index to measure and compare the degree of fiscal decentralisation across countries in a manner that is reliable and consistent with fiscal theory
- compare and contrast these newly-developed indices with other measures of fiscal decentralisation
- apply our indices to China, Vietnam and other selected ASEAN nations, and to identify policy implications for Vietnam’s fiscal decentralisation.

## 1.2 Indices of fiscal decentralisation

We attack the problem of measuring fiscal decentralisation by developing two indices. The first index is the fundamental index of fiscal decentralisation (FDI) which takes account of the first-order issues of fiscal decentralisation: the fiscal autonomy and fiscal importance of SNGs. The second is the enhanced index of fiscal decentralisation (eFDI), which extends the FDI to account for the second-order issues of the effects of unconditional grants and borrowings by SNGs on subnational fiscal autonomy. In what follows, we shall briefly describe each index.

### 1.2.1 The fundamental index of fiscal decentralisation (FDI)

For a particular nation, suppose there are  $P$  subnational regions to be indexed by  $i = 1, \dots, P$ . These subnational regions could be states of a federal country or provinces of

a unitary nation. Let  $E_1, \dots, E_p$  be expenditure by the subnational regions, so that total subnational expenditure is  $E = \sum_{i=1}^p E_i$ . Similarly, total subnational own-sourced revenue is  $OSR = \sum_{i=1}^p OSR_i$ , where  $OSR_i$  is an own-sourced revenue of subnational region  $i$ . In addition, let  $TE$  represent total public sector expenditures, including total subnational expenditure  $E$  and expenditure by the national government. Total expenditure  $TE$  does not include fiscal transfers from one government to another (such as fiscal transfers from the national government to SNGs). We can then introduce the following concepts:

- *Own-sourced revenue as a fraction of total subnational expenditure,  $\frac{OSR}{E}$ .*

This is the share of subnational expenditure that is funded by subnational own-sourced revenue, which we shall call the “fiscal autonomy” of SNGs.

- *Total subnational expenditure as a fraction of total public sector expenditure,  $\frac{E}{TE}$ .* This is the share of total public-sector expenditure that is undertaken by SNGs, to be called the “fiscal importance” of SNGs.

The fundamental index of fiscal decentralisation is the geometric mean of the fiscal autonomy and fiscal importance of SNGs:

$$(2.1) \quad FDI = \sqrt{\left(\frac{OSR}{E}\right) \times \left(\frac{E}{TE}\right)}.$$

As the FDI is a type of a mean of the two shares  $OSR/E$  and  $E/TE$ , its value is bracketed by these shares. The form of the index (2.1) is derived from underlying economic principles in Chapter 3.

### 1.2.2 The enhanced index of fiscal decentralisation (eFDI)

The above FDI ignores the effects of two second-order determinants of subnational governments’ fiscal autonomy, the effects of (i) fiscal transfers to SNGs and (ii) SNGs’ borrowing. The enhanced index (eFDI) addresses this issue.

Although own-sourced revenue and fiscal transfers both provide resources to subnational governments, their impact on fiscal autonomy can differ. While SNGs have more or less complete autonomy over their own-sourced revenue, when the fiscal transfers are conditional, restrictions are placed on how the funds can be spent. As the expenditure of unconditional grants is at the discretion of SNGs, they contribute to their fiscal autonomy. The task is then to isolate the unconditional transfers, the ones that contribute to the fiscal autonomy of SNGs. To this end, we introduce the following notation: Let  $T^U$ , and  $T^C$  denote unconditional and conditional transfers from the national government to SNGs, so that  $T = T^U + T^C$  is total transfers. We can then identify:

- The difference between the unconditional and conditional fiscal transfer to SNGs,  $T^U - T^C$ , is *the net unconditional transfer*.
- Net unconditional transfer as a fraction of total subnational expenditure,  $\frac{T^U - T^C}{E}$ , is the share of subnational expenditure which is funded by the net fiscal transfers, to be called the *fiscal transfer share*.
- Unconditional transfers as a fraction of total transfers,  $\frac{T^U}{T}$ . We use this fraction as a *premium factor* to adjust the fiscal transfer share in recognition of the fact that the national government, and not the SNG, determines the value of unconditional grants. The larger unconditional transfers are in relation to the total, the higher is the premium factor and the greater is the “quality” of the transfers from the perspective of the fiscal autonomy of the SNG.
- The product of the fiscal transfer share and the premium factor,  $\left(\frac{T^U - T^C}{E}\right)\left(\frac{T^U}{T}\right)$ , to be called the *fiscal transfer adjustment coefficient*, measures the total effect of fiscal transfers on subnational fiscal autonomy. This reflects the idea that when the national government provides grants to SNGs on an unconditional basis, the constraint on SNGs’ fiscal autonomy is less than when conditional grants are provided. Furthermore, national governments that provide unconditional transfers to SNGs appear to have a



relatively greater propensity to consider local preferences. In view of this, they are more likely to try to transfer an amount which may approximate what SNGs would have collected in taxes themselves, if they had the power to do so. It is convenient to write  $k$  for the fiscal adjustment coefficient

$$\left( \frac{T^U - T^C}{E} \right) \left( \frac{T^U}{T} \right).$$

The enhanced index of fiscal decentralisation is defined as:

$$(2.2) \quad eFDI = \sqrt{\left( \frac{OSR}{E} + k \right) \times \left( \frac{E}{TE} \right)}$$

As the fiscal transfer adjustment coefficient  $k$  can be of either sign, or zero, it is appropriate that this enters the enhanced index in an additive form, not multiplicative. The enhanced index (2.2) extends the initial index (2.1) by taking into account the effect of fiscal transfers on subnational fiscal autonomy. Details of the development of the index (2.2) are provided in Chapter 4.

The above indices of fiscal decentralisation measure total resources that flow between levels of government. By the nature of these total flows, the indices do not consider any distributional effects of these flows. For example, in Australia, the state of New South Wales is expected to attract a substantially higher share of revenue from its economy simply because it is “large” in terms of its population and economy while the smaller state of South Australia would receive much less. Similarly, the City of Perth, a large SNG in Western Australia, is expected to receive one of the largest shares of revenue and expenditure among all 143 local councils in that state. An additional element of fiscal decentralisation is thus the analysis of inequality of fiscal flows. We employ the notion of entropy as a measure of inequality of subnational fiscal inequality. The use of the entropy as an inequality measure was introduced into economics by Theil (1967). The entropic measure of fiscal inequality is developed in Chapter 5, followed by applications for Australia and Denmark in Chapter 6.

Box 1.1 provides a summary of key elements of the two indices of fiscal decentralisation, together with the fiscal inequality measure.

### BOX 1.1

#### MEASURING FISCAL DECENTRALISATION

##### 1. The Fundamental Index of Fiscal Decentralisation

The fundamental index of fiscal decentralisation uses two concepts: (i) fiscal autonomy, the extent to which subnational expenditure is funded by own-sourced revenue, defined as  $OSR/E$ , where  $OSR$  is subnational own-sourced revenue,  $E$  is subnational expenditure; and (ii) fiscal importance, the extent to which total public sector expenditure is undertaken by subnational governments, defined as  $E/TE$ , where  $TE$  is the total public sector expenditure. The index of fiscal decentralisation is the geometric mean of these two concepts:

$$FDI = \sqrt{\left(\frac{OSR}{E}\right) \times \left(\frac{E}{TE}\right)}.$$

##### 2. The Enhanced Index of Fiscal Decentralisation

The enhanced index takes into account the effects on subnational fiscal autonomy of fiscal transfers to SNGs. It is related to the above fiscal decentralisation index via a term involving transfers:

$$k = \frac{T^U - T^C}{E} \times \frac{T^U}{T},$$

where  $T^U$ ,  $T^C$  and  $T$  are unconditional, conditional, and total fiscal transfers to SNGs from the national government, respectively. The enhanced index is then defined as:

$$eFDI = \sqrt{\left(\frac{OSR}{E} + k\right) \times \left(\frac{E}{TE}\right)}.$$

##### 3. Fiscal Inequality

To account for the distributional effects of revenue across subnational governments, we use an entropic measure of dispersion or inequality:

$$H' = \sum_{i=1}^N r_i \left( \log r_i - \log \frac{1}{N} \right), \quad 0 \leq H' \leq \log N,$$

where  $r_i$  is the share of SNG  $i$  in the total revenue of all such SNGs; and  $N$  represents the number of subnational units. The measure  $H'$  is a weighted average of the logarithmic deviations of the shares  $r_i$  from what they would be under perfect equality  $1/N$ . Thus  $H'$  is a measure of the dispersion of revenue across SNGs that increases with greater inequality of the distribution of revenue. A similar measure applies to the inequality of expenditure across SNGs.

### 1.3 Illustrations

To illustrate the workings and interpretations of the above measures of fiscal decentralisation, in this section we provide some numerical examples.

TABLE 1.1  
FISCAL ARRANGEMENTS IN TWO COUNTRIES  
(Millions of dollars)

Fiscal item	Value in	
	Country V	Country L
<u>A. Revenue and expenditure</u>		
1. SNGs' own-sourced revenue, $OSR$	293	293
2. SNGs' expenditure, $E$	412	412
3. National government expenditure	<u>412</u>	<u>412</u>
4. Total government expenditure, $TE$	824	824
<u>B. Fiscal decentralisation index</u>		
5. Fiscal autonomy, $OSR/E$	0.71	0.71
6. Fiscal importance, $E/TE$	0.50	0.50
<b>7. FDI</b>	<b>0.60</b>	<b>0.60</b>
<u>C. Enhanced fiscal decentralisation index</u>		
8. Fiscal transfers to SNGs		
9. Unconditional, $T^U$	75	45
10. Conditional, $T^C$	<u>45</u>	<u>75</u>
11. Total	120	120
12. Net unconditional transfer, $T^U - T^C$	30	-30
13. Fiscal transfer share, $(T^U - T^C)/E$	0.07	-0.07
14. Premium factor, $T^U/T$	0.63	0.38
15. Adjustment coefficient, $k = [(T^U - T^C)/E](T^U/T)$	0.05	-0.03
16. Adjusted fiscal autonomy, $OSR/E + k$	0.76	0.68
17. Fiscal importance, $E/TE$	0.50	0.50
<b>18. eFDI</b>	<b>0.62</b>	<b>0.58</b>

Panel A of Table 1.1 provides hypothetical fiscal data on revenue and expenditure for countries V and L. For simplicity, the fiscal dimensions of the two countries are taken to be identical. We do this in order to be able to isolate certain differences subsequently. It is assumed that SNGs' own-sourced revenue, subnational expenditure, and national government expenditure (excluding fiscal transfers to SNGs) are \$293, \$412, and \$412 million, respectively, so that total public sector expenditure is  $412 + 412 = \$824$  million in both countries.

Panel B uses the above data and presents the fundamental index (FDI) and its ingredients. The first component of this FDI is the fiscal autonomy of SNGs, defined as the ratio of SNGs' own-sourced revenue to SNGs' expenditure,  $293/412 = 0.71$ , as indicated by row 5. The fiscal importance of SNGs, the ratio between SNGs' expenditure and total public sector expenditure, is  $412/824 = 0.5$  (row 6). The value of the FDI is just the geometric mean of fiscal autonomy and fiscal importance,  $FDI = \sqrt{0.71 \times 0.50} = 0.6$ , as indicated by row 7 of the table.

Panel C presents the enhanced index (eFDI), which takes into account the influence of fiscal transfers, and its components. It is assumed that total transfers are \$120 million in both countries (row 11). However, the components of transfers differ with unconditional transfers accounting for a larger portion in country V as compared to country L, \$75 million versus \$45 million (row 9). We use these basic data to compute the enhanced index (eFDI) as follows:

- First, *the net unconditional transfers*, defined as the differences between the unconditional and conditional transfers  $T^U - T^C$ , are \$30 million and -\$30 million for countries V and L, respectively (row 12).
- Second, *the fiscal transfer shares*, defined as the shares of subnational expenditure which are funded by the net fiscal transfers,  $(T^U - T^C)/E$ , are 0.07 and -0.07 (row 13).

- Third, the *premium factors*, the ratios between unconditional and conditional transfers,  $T^U/T^C$ , are 0.63 and 0.38 (row 14). The larger value of the premium factor for country V indicates that its fiscal transfers are of higher quality as their expenditure is less constrained.
- Fourth, the *adjustment coefficient* is  $0.07 \times 0.63 = 0.05$  for country V and  $-0.07 \times 0.38 = -0.03$  for country L (row 15).
- Fifth, the *adjusted fiscal autonomy*, the fiscal autonomy of SNGs adjusted for the impact of transfers, is  $0.71 + 0.05 = 0.76$  for country V and  $0.71 + (-0.03) = 0.68$  for country L (row 16).
- Sixth, the *enhanced index* (eFDI) of fiscal decentralisation is  $\sqrt{0.76 \times 0.50} = 0.62$  for country V and  $\sqrt{0.68 \times 0.50} = 0.58$  for country L (row 18).

Thus, as unconditional transfers in country V account for a larger share in total transfers, the value of the eFDI for this country are higher than that for country L. We can therefore conclude that, all things considered, country V has more fiscally decentralised arrangements than country L. Although SNGs' own-sourced revenue and expenditure are the same in the two countries, as are total transfers, as more of these transfers are unconditional (that is, untied) in country V, the effective degree of fiscal decentralisation in country V is higher than in country L.

Table 1.2 provides fiscal data on the different distributions of revenue among SNGs in countries V and L for the purpose of measuring fiscal dispersion of revenue shares. It is assumed that countries V and L consist of four subnational regions: A, B, C and D, each with different level of revenue. Column 2 shows that there is one small region in country V, region A. Revenue from region B is almost double that of D and forty times higher than that of region A. Columns 3 and 4 present the actual and average revenue shares for 4 regions in country V. By contrast, in country L, there are one large and three small regions. In country L, region B accounts for more than 92 per cent of the

total revenue of all regions, and the remaining 8 per cent is spread across the three small regions A, C, and D.

TABLE 1.2  
REGIONAL FISCAL ARRANGEMENTS

Region	Country V				Country L			
	Revenue	Share in total (per cent)			Revenue	Share in total (per cent)		
	(\$ millions)	Actual	Average	Difference	(\$ millions)	Actual	Average	Difference
(1)	(2)	(3)	(4)	(5) = (4) – (3)	(6)	(7)	(8)	(9) = (8) – (7)
A	3	1	25	24	3	1	25	24
B	125	43	25	-18	271	92	25	-67
C	97	33	25	-8	11	4	25	21
D	68	23	25	2	8	3	25	22
Total	293	100	100	0	293	100	100	0

TABLE 1.3  
MEASURING FISCAL INEQUALITY

Dispersion of shares	Country V	Country L
1. Standard deviation	0.18	0.45
2. Fiscal inequality	0.12	0.46

Row 1 of Table 1.3 presents the standard deviation of the revenue shares in the two countries. As the standard deviation in country V is less than one-half that in country L, there is clearly less dispersion, or less inequality of the distribution of fiscal revenue across subnational government units in country V. Our measure of fiscal inequality is

$H' = \sum_{i=1}^N r_i (\log r_i - \log 1/N)$ , where  $r_i$  is the revenue share of SNG  $i$  and  $N = 4$  in this example. Thus as an approximate, we can say that fiscal inequality is about 12 per cent in country V and 46 per cent in country L.

The above illustrations can be summarised as follows. According to the fundamental index, both countries V and L exhibit the same degree of fiscal decentralisation because they have the same structure of revenue and expenditure between national and subnational governments. The enhanced index reveals different degrees of fiscal decentralisation in these two countries because of the different role of unconditional transfers in the two countries. In particular, the large unconditional transfers in country V lead to the conclusion that it is more fiscally decentralised than in country V. However, a further issue is that there is much more inequality in the distribution of fiscal flows to SNGs in country L. As shown in Table 1.3, our measure of fiscal inequality is a convenient way to capture the distributional consequences of fiscal flows.

#### 1.4 The contributions

The thesis makes three significant contributions to the existing literature on the economics of measuring fiscal decentralisation. Each of them is briefly discussed below.

- **The development of new indices of fiscal decentralisation.** A new index of fiscal decentralisation is developed that is founded on the economics of fiscal decentralisation. As discussed above, this index summarises the degree of fiscal autonomy and fiscal importance of subnational governments. This index is applied to 31 countries, ranging from federal nations (e.g. Australia, Canada) to unitary countries (Denmark, China); from developed economies (e.g. Switzerland, The United States of America) to developing nations (Vietnam, Indonesia). Key findings of this application include: (i) the degree of fiscal decentralisation in federal countries is generally higher than in unitary countries; and (ii) fiscal decentralisation occurs to a larger extent in

developed countries compared to developing nations. We also compare the workings of our indices with the first index of fiscal decentralisation developed more than half a century ago by Scotto (1950).

- **The development of a framework for the analysis of the inequality of fiscal flows.** While fiscal autonomy and fiscal importance of subnational governments are fundamental to fiscal decentralisation, the distributional aspects of revenue and expenditure allocations among subnational units also have important implications. To deal with fiscal inequality, we introduce a novel entropic approach into the fiscal decentralisation literature. This framework is applied to Australia and Denmark. Two key findings and conclusions emerge. *First*, in decentralised federal systems, the fiscal differences, in terms of revenue and expenditure, between the first- and the second-tier subnational governments are typically large; i.e., state governments are usually fiscally larger than local governments. This is not the case in unitary systems in which fiscal differences are typically relatively small. *Second*, due to fiscal differences between first- and second-tier levels of government, the new indices developed in this study underestimate the true degree of fiscal decentralisation in federal nations and overestimate the degree in unitary countries. One way to adjust for this inbuilt bias is to use information on the inequality of fiscal flows to gain a more accurate picture of the degree of fiscal decentralisation. Our entropic measure of fiscal inequality can be employed for this purpose.
  
- **Policy implications for fiscal arrangements in Vietnam and other developing countries.** We investigate intragovernmental fiscal arrangements in China, Vietnam, Indonesia, the Philippines, and Thailand. Focusing on the fundamental aspects of fiscal autonomy and fiscal importance of subnational governments, two main policy implications are identified for Vietnam. *First*, the degree of fiscal autonomy of SNGs in Vietnam is among the lowest in the five countries. There would thus seem to be substantial scope and merit in



increasing fiscal decentralisation in Vietnam by allowing its subnational governments to set bases and rates for some taxes, for example, property taxes and local business taxes, as in the case of China. *Second*, the revenue-raising powers of SNGs in Vietnam are determined at the discretion of the national government. The fragile foundation of these arrangements could give rise to considerable uncertainty regarding future taxes that may inhibit the confident planning needed for longer-term growth. Consequently, we conclude that the assignment of taxing powers to the SNGs needs to be secured in the national constitution, so that their fiscal autonomy is strengthened, as in the case of the Philippines and Thailand.

### 1.5 The structure of the thesis

The thesis can be considered to be made of three distinct parts: (i) the economic context of fiscal decentralisation; (ii) indices of fiscal decentralisation; and (iii) fiscal decentralisation in Vietnam, China, and selected ASEAN nations and policy implications. Each of these is briefly discussed below.

*The economic context of fiscal decentralisation.* This section comprises Chapters 1 and 2. Chapter 2 synthesises the economic aspects of fiscal federalism and decentralisation. This chapter includes an analysis of the first generation approaches to the public economics of decentralisation, including the Musgravian fiscal framework, the Tiebout Sorting, the Decentralisation Theorem, Public Choice and the Leviathan, and a brief commentary on the emerging second generation approaches.

*Indices of fiscal decentralisation.* This section comprises Chapters 3 to 6. Chapter 3 develops a new index of fiscal decentralisation, based on the theoretical discussion of fiscal autonomy and fiscal importance in Chapter 2. This index is shown to be superior to other existing indices, in terms of its consistency and links with theory. In addition, this new index is applied to a wide range of countries to compare the extent of their degree of fiscal decentralisation. Chapter 4 develops an enhanced index of fiscal decentralisation

that accounts for the impact of intergovernmental fiscal transfers. We use Australian data to test the enhanced index by comparing it against the very first index of fiscal decentralisation, which was developed by Scotto (1950). Chapter 5 introduces the analytical framework for fiscal inequality. This is used to measure the distributional aspects for revenue and expenditure across subnational units. An application of this framework is presented in Chapter 6 for Australia and Denmark.

*Vietnam and China.* This section comprises Chapters 7, 8 and 9. Chapter 7 examines Vietnam's fiscal history and reforms with an emphasis on fiscal decentralisation. This investigation is one of the most systematic analyses of fiscal decentralisation in Vietnam since its independence in 1975. Chapter 8 discusses intragovernmental fiscal arrangements in China and selected ASEAN nations. The purpose of this analysis is to compare and contrast similarities and differences of fiscal issues among these five countries to draw implications for Vietnam and other developing countries. Chapter 9 provides a brief summary of the thesis, discusses implications, and identifies policy implications for public finances in Vietnam.

## **CHAPTER 2**

### **OVERVIEW OF THE ECONOMICS OF FISCAL DECENTRALISATION**

#### **2.1    Introduction**

The topic of fiscal federalism was generally introduced into public finance theory in the mid-twentieth century, which opened the door to the systematic analysis of fiscal decentralisation. The main normative question associated with this subject concerns the extent to which fiscal powers and responsibilities should be devolved from higher to lower levels of government. The level of analysis associated with this question has now developed to the extent where scholars have started to distinguish between first and second generation theories of fiscal decentralisation (Oates, 2005, p.349). The second generation theory of fiscal decentralisation is only newly emerging and it does not yet represent a coherent system of analysis, or at least, it has not been well established.

In this chapter, the first generation approach to public economics of decentralisation is overviewed in Section 2.2, with attention given to the seminal contributions by distinguished scholars such as Richard Musgrave, Wallace Oates, Charles Tiebout and James Buchanan. The main practical issues in fiscal decentralisation, namely the assignment of responsibility for service provision, the assignment of taxing powers, intergovernmental fiscal transfers and subnational borrowing, are briefly examined in Section 2.3. The treatment of these four practical issues in the first generation theory of fiscal decentralisation is discussed in Section 2.4. A brief discussion of the newly emerging second generation approaches to fiscal decentralisation is included in Section 2.5, which is followed by a conclusion in Section 2.6.

#### **2.2    First generation approaches to the public economics of decentralisation**

A policy of fiscal decentralisation is directed towards the transfer of fiscal powers and responsibilities from the national to subnational governments (“SNGs”). While fiscal centralisation is often a response to the demands of national unity, fiscal decentralisation

may be seen as a response to the demands for diversity and accountability within the community. On balance, the first generation theorists investigating fiscal federalism tended to associate the process of fiscal decentralisation with an enhancement in the overall degree of public sector responsiveness to a public demand and, ultimately, to an improvement in the economic efficiency of public economic activities by better linking resource allocation with public preferences.

In this study, the definition of decentralisation provided by the World Bank is adopted: “Decentralisation – the transfer of authority and responsibility for public functions from the national government to subordinate and quasi-independent government organisation” (World Bank, 2003, p.1).

Among many different economic ideas about decentralisation of public functions to SNGs, and the associated issue of public finances under decentralised systems, seminal contributions were made by Tiebout (1956), Musgrave (1959) and Oates (1972), all of who laid the strong foundation for the significant discussions of fiscal decentralisation. Mancur Olson (1969), through his concept of fiscal equivalence, also made an important contribution<sup>2</sup>. These studies, in conjunction with the public choice approach to multi-tier government initially developed by Geoffrey Brennan and James Buchanan in *The power to tax – Analytical foundations of a fiscal constitution* (1980), represent seminal works in the first generation literature on fiscal decentralisation.

### 2.2.1 Musgravian fiscal framework and federalism

In the influential book, *The theory of public finance – A study in public economy*, Musgrave (1959) introduced three different branches or categories of public finance: economic stabilisation, income distribution, and resources allocation. These branches have come to represent the benchmarks from which issues in public economics are treated by the non-public choice group within their first generation studies of fiscal decentralisation. In general terms, each branch is individually subject to consistent

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<sup>2</sup> This is discussed further in Section 2.2.3.

theoretical analysis. Between these branches, analytical consistency is more difficult because of diverse and subjective assessments of the relative importance of stabilisation, income distributions and efficiency. In the specific public finance perspective on federalism, the Musgravian branches of public finance proved useful in setting the constraints to fiscal decentralisation (stabilisation and distribution) and the potential benefits of fiscal decentralisation (efficiency).

The first branch is economic stabilisation. Fiscal and monetary policies may contribute to stable economic development. The key issue for theory is whether fiscal decentralisation enhances or detracts from economic stability and compromises the general macroeconomic goals of governments. The received view among first generation theorists is clear: decentralisation of fiscal arrangement does not serve to enhance the macro stabilisation objective, rather, macro stabilisation represents a constraint on the feasible degree to which fiscal powers can be devolved to SNGs (Oates, 1972, p.7).

The second branch of public economics concerns income distribution. Economic goods are produced and governments typically play some role in modifying the market determined distribution of goods across members of a given society. Taxes may be progressive and welfare services may target lower income members of society. Again, it appears that decentralisation of fiscal arrangements does not tend to systematically advance society's income distribution objectives because economic interdependencies between the economies of subnational jurisdictions act to reduce any diversity in the distribution of goods that would exist across lower level governments. In the absence of diversity in redistribution goals between SNGs, if the demand for redistribution is nationally uniform, the case for assigning responsibility for redistribution to SNGs is weakened. In short, an income redistribution policy has a greater chance of success if it is carried out at the national level (Oates, 1972, p.9).

It is in the final branch of public economics – resources allocation – where the importance of fiscal decentralisation emerges in the work of first generation theorists. This is so for two main reasons. *First*, scarce resources should be more efficiently

allocated under a decentralised fiscal system, as SNGs may be in a better position of understanding how to maximise benefits from the use of resources in their localities. *Second*, the character of “impure” or local public goods, which will be discussed further in Section 2.2.2, adds a local (or regional) congestion dimension to service provision that national governments may not be well placed to manage. In short, if the “local” dimension of public goods is ignored, provision of such goods at the same level across all regions will compromise efficiency when preferences for local public goods differ by regions, jurisdictions or levels of government. As a result, SNGs have the potential to play a major role in efficient resource allocation. In this branch of public economics, the intention to mobilise resources regionally is recognised so that the preferences and tastes of heterogeneous inhabitants can be better served.

Consequently, within the Musgravian framework, the first generation theory of fiscal decentralisation primarily emphasises the brand of public economics concerned with the efficiency of resource allocation. When the first generation theory considers fiscal decentralisation, such as in the assignment of expenditure responsibility and revenue-raising powers, it is primarily aimed at achieving efficient resource allocation which maximises welfares for constituencies. In addition, intergovernmental fiscal transfer systems from the national government to SNGs and the autonomy of SNGs’ borrowings are also discussed in a similar manner in the first generation theory of fiscal decentralisation. While the branches of public finance concerned with economic stabilisation (to maintain an economy at high levels of employment and stable price level) and income distribution (to achieve horizontal equity and vertical equity in a manner that avoids inefficiency, and to avoid mobility of households and firms across jurisdictions) are considered within the first generation theory of fiscal decentralisation, they are generally considered as secondary to the degree of fiscal decentralisation.

### 2.2.2 Tiebout Sorting

Tiebout (1956) introduced the notion of “impure” or local public expenditures to the theory of public finance. He did so to analyse political and fiscal decentralisation in

terms of competition among localities, with the mobility of citizens between localities providing the mechanism for preference revelation. The essence of the Tiebout hypothesis is that consumer demand for local public goods can be revealed when citizens choose the jurisdiction which provides him or her with the best net benefit. The hypothesis states that, with mobility, consumer-voter's preferences can be revealed and consumers will end up at, or at least close to, the point where their demand for impure public goods is met with due recognition of the costs of supplying this demand. This is now generally known as "Tiebout sorting". In particular, this notion of Tiebout's was primarily a response to the problem of the under-provision of public goods as posed by Paul Samuelson. Tiebout shows that when public goods are provided by competing regions, sorting according to preferences would induce an efficient provision.

Tiebout's notion of "impure" public goods differs from global or pure public goods, as developed by Samuelson (1954), which are defined by two main characteristics: "non-excludability" and "non-rivalry" in consumption. Non-excludability means that once public goods are produced, no one can be excluded from consuming them. Non-rivalry requires that the marginal benefits that any consumer derives from the consumption of public goods do not change if the number of consumers increases. National defence is the classic example of the pure public good. Once this service is produced, it is impossible, or at least inefficient, to exclude any person in a community from its consumption (Buchanan, 1999). Additional residents are added to a jurisdiction and consume pure public goods without any additional costs. The characteristic of non-rivalry of pure public goods has implied a consequence which was mentioned by Samuelson (1954). The consequence is that the optimal level of public goods provision cannot be obtained since there is no mechanism for preference revelation.

In response to Samuelson's concerns over preference revelation of public goods, Tiebout (1956) argued that many public goods, such as parks, are actually "impure" because they are subject to congestion (i.e. they are not rival, or progressively less rival, beyond some locally defined boundary). When the number of users increases, public goods consumption may become congested.

Tiebout's vision is in contrast with Samuelson's works, which emphasises that preferences for publicly provided goods are not revealed because the revelation would result in an increase in payment to the citizen who declares his preference without any increase in the quantity of the public good provided (Hamilton, 1987). In short, the Samuelsonian approach considers "pure" public goods whereas the Tiebout approach emphasises the "impurity" of public goods. Mobility among jurisdictions is possible even though there are some typical obstacles to consumer mobility, such as job commitment and family connection (Oates, 2005, p.350). In a decentralised society, consumers will effectively sort themselves into homogenous groups whose demand for certain public goods and services are the same (Oates, 2005, p.353). As such, decentralised provision of local public goods and services is essential.

A significant aspect of Tiebout sorting is its relevance to policymakers, and the consequent implications for fiscal arrangements. Policies to encourage residential mobility and develop knowledge among residents of public benefits and costs will encourage migration which acts as a force that contributes to improvements in the efficiency of government expenditures. It is also argued that the higher the revealed degree of mobility of households from region to region, the lower the efficiency of the allocation of resources, other things held constant (Tiebout, 1956). This is because there would be no mobility of households and firms when all subnational units are in an equilibrium state – benefits provided would be consistent with costs. As a result, due to the pressure on governments from this mobility, production efficiency will be enhanced.

In summary, Tiebout has made two main contributions to the study of fiscal decentralisation. *First*, he introduced the notion that it is impure public goods, which are provided by SNGs. *Second*, he demonstrated that mobility of taxpayers–voters between jurisdictions represents the mechanism by which individuals reveal their preference for "impure" public goods.



### 2.2.3 Fiscal Equivalence and the Decentralisation Theorem

Olson (1969) introduced the seminal notion of “fiscal equivalence” to economics within a general framework for investigations of fiscal decentralisation. “Fiscal equivalence” is the notion which posits that, for every collective good, there is a unique “boundary” for which a separate government is needed, so that “there can be a match between those who receive the benefits of a collective good and those who pay for it” (Olson, 1969, p. 483). In broad terms, it positively associates the efficiency goal of public economics with aligning the costs and benefits of impure public good provision with multi-tiered federal systems, each with overlapping physical boundaries, but each with unique boundaries relating to the provision of specific public goods.

The next seminal contribution was made by Oates in his monograph *Fiscal Federalism* (1972). Oates implicitly blended Olson’s notion of fiscal equivalence with aspects of Tiebout’s notion of impure public goods in his theory of fiscal decentralisation, although without focusing directly on household mobility or sorting. He argued that there should be a variation of the provision of impure public goods and services from governments since inhabitants have different tastes for public services. Oates formalises his treatment of the issue by defining public goods in a manner that comprises both pure and impure public good attributes. All that matters is that benefits from non-excludable and non-rival public goods are linked to a population in a geographic subset (impure public goods) or the union of population from all such subsets (pure public goods). From this, he developed the Decentralisation theorem:

“For a public good – the consumption of which is defined over geographical subsets of the total population, and for which the costs of providing each level of output of the good in each jurisdiction are the same for the central or the respective local government – it will always be more efficient (or at least as efficient) for local governments to provide the Pareto-efficient levels of output for their respective jurisdictions than for the central government to provide *any* specified and uniform level of output across all jurisdictions” (Oates, 1972, p. 35).

Oates’ Decentralisation theorem has a clear rationale. Welfare is maximised when specific public goods are provided by local governments whose jurisdiction corresponds

to the subset of the national population for which the demand for specific public goods and services is homogenous. If the national government is assumed to provide the same bundle of public goods and services across all subnational jurisdictions, then it will not be possible for the national government to provide the efficient level unless preferences are homogeneous for all members of the population.

Oates' assumptions on uniform provision of public goods by national governments do not reflect reality in any strict sense. Indeed, this assumption has been criticised by Brennan and Buchanan (1980). However, it may be a reasonable approximate for two main reasons. *First*, the national government does not have extensive information on a diversity of local preferences and tastes. There is an asymmetry of information relating to local tastes between the national government and SNGs. *Second*, while national governments can provide different levels or different types of public services in different regions, there are political constraints for the extent to which this can happen. In this regard, the national government is, to some extent, constrained to provide uniform goods and services across regions to avoid possible adverse political consequences which may arise from differentiating the level of goods and services provided across subnational jurisdictions. Related to this are potential constitutional constraints. For example, in Australia, the Federal Government is required to treat states the same – different rates of the Goods and Services Tax could not apply in New South Wales and Western Australia, even if different levels of public services demanded in these two states are different.

Oates' Decentralisation theorem is also predicated on the two other restrictive assumptions concerning economies of scale and externalities. *First*, it is assumed that provision costs are the same when public goods are provided by either the national government or all SNGs together. If this is not the case, it is possible that centralised provision may be less expensive when there are economies of scale. However, even this has been criticised by Wagner (2007, pp.164-7), who argues that economies of scale is largely irrelevant to the size of subnational government units. When particular government services benefit from economies of large-scale production, large SNGs

enjoying economies of large-scale production can produce these services for sale to other small scale SNGs. That is, SNGs with diseconomies of scale can purchase public services from larger SNGs which can exploit their economies of scale. As such, some government units articulate demand for services whereas the others produce services for different governments on a contractual basis. *Second*, there are no externalities in public goods provision – each level of government provides an efficient amount of public goods to a respective constituency. As a result, there is an existence of a so-called perfect mapping – local governments provide goods and services which bring benefits to local people in the same region only. This too is a very “strong” assumption because it is, in practice, almost impossible to limit the benefits of locally public goods provided in a specified region. Externalities always go together with any provision of public goods.

The important contribution of first generation theory is that it reveals that efficient levels of publicly provided outputs are more typically achieved through multi-tiered systems of government than through a unitary system of government. Welfare benefits from decentralisation are likely to be greatest when there is a diversity of preferences for impure local public goods. However, the limits of these findings – due to the restrictive assumptions used to derive the decentralisation theorem – cannot be overlooked. At some point, the level of fiscal decentralisation will become inefficient as economies of scale for public good provisions are lost and negative fiscal externalities emerge.

#### 2.2.4 Public choice and Leviathan

The final stream of the first generation theory derives from the public choice literature, which reaches back into intellectual history for its motivation. In 1660, Thomas Hobbes described the notion of the Leviathan, or to be called a Commonwealth or State, as “an artificial man, though of greater stature and strength than the natural, for whose protection and defence it was intended; and in which the sovereignty is an artificial soul, as giving life and motion to the whole body...” (Hobbes, 1660, p.1)

Brennan and Buchanan (1980) revived the notion of the State as Leviathan. They developed the hypothesis that the main interest of the government is to tax heavily so that they have financial resources to spend. In this representation, the government is a monolithic Leviathan, which always seeks to maximise its taxation revenue. In response to this issue, the only way to limit the extent of government oversupply, and as a consequence, overtaxation, is to constrain governments through effective constitutions that decentralise political and fiscal authority. When political action has the motivational characteristics of Leviathan, political and fiscal decentralisation divides, competition between public bodies reduces the force to grow the public sector. In addition, the “protective state”, which establishes the government as enforcer of individual rights and contracts, carries the functions which can be effectively allocated, by competition processes, to the relevant level of government. It is hypothesised that if these protective functions are all assigned to the national government, this government unit has a real incentive to maximise a net surplus because there is no effective controls on its taxing powers. The presence of fiscal decentralisation constrains government, encouraging it to devolve to increase the efficiency in providing goods and services to its respective jurisdictional inhabitants, otherwise local citizens will vote on their feet. This contributes an effective constraint on excessive taxing from all government units. As a result, the size of the SNGs, and then, the size of the aggregate government sector, decreases.

In general, the Leviathan hypothesis and public choices approach to fiscal federalism provided a new perspective on government which highlighted the main advantage of fiscal decentralisation as a force for maintaining smaller government.

“Total government intrusion into the economy should be smaller, *ceteris paribus*, the greater the extent to which taxes and expenditures are decentralised, the more homogeneous are the separate units, the smaller the jurisdictions, and the lower the net regional rents” (Brennan and Buchanan, 1980, p.185).

#### 2.2.5 A brief characterisation of the first generation theory

In broad terms, it may be concluded that there are two general streams of first generation theory, with Tiebout having a major influence on both. There are: (i) studies

that draw on Tiebout's impure local public goods concept and integrate it with the Musgravian framework; and (ii) studies that draw on Tiebout's notion of inter-jurisdictional mobility and link it with forces that limit the size of the public sector. The work of Oates, for example, would fall under the first category, referred to here as the "core" first generation theory of fiscal decentralisation, while the public choice approach of Brennan and Buchanan would fall under the second, non-core, category. Importantly, though, the non-core public choice approach is a "complement" to "core" first generation theory, as it relates to the particular question of fiscal decentralisation.

### 2.3 Practical issues in fiscal decentralisation

Before considering the development of the fiscal decentralisation theory as particular issues of fiscal decentralisation, it is useful to look at the main practical issues of fiscal federalism from a purely descriptive perspective. This is because theory, at least initially, is developed from observations of the phenomena in question. In addition, fiscal decentralisation has attracted a special attention from international institutions such as the World Bank. This organisation views fiscal decentralisation as a mechanism to encourage and enhance economic growth, particularly for developing economies.

The four main practical issues that concern fiscally decentralised systems are: the assignment of responsibility for the provision of services across different tiers of government; the assignment of revenue-raising powers; intergovernmental fiscal transfers; and subnational borrowing (World Bank, 2003, p.3). Every society faces these issues when establishing a multi-tiered fiscal system, or when maintaining that system. Each of these issues will be discussed in turn.

#### 2.3.1 The assignment of responsibility for services provisions

In a multi-tiered fiscal system, responsibility for the provision of particular types of services is assigned across different tiers of government. The assignment of services can be unique (for example, a national government is always assigned to provide

defence) or shared across levels of government, such as education, which is jointly provided by national government and SNGs. The main practical issue to confront is the extent of this assignment among various tiers of governments and the composition of that assignment. Related to this, legal issues pertaining to the assignment of responsibility for service provision have also attracted attention. Should the assignment of spending responsibilities be constitutionally codified or merely the outcome of the practice and fiscal competition within, and between, various levels of government?

In the case of many developed federations such as Australia, Canada, and the US, spending from the national (federal) government dominates in some fields, especially in unique areas of national interests, such as defence and international relations. Provincial governments in Canada also hold a significant discretion on spending for education, law, and order. This level of government is mainly responsible for spending on recreational and cultural areas, local roads and parks (Krelove et. al., 1997).

### 2.3.2 The assignment of revenue-raising powers

The assignment of revenue-raising “powers” across various levels of government is an important, and hotly debated, aspect of fiscal federalism. Reference to “powers” in this context involves two elements: (i) the legal authority to raise particular types of revenue (i.e. a constitutional question); and (ii) the decision by various levels of government as to whether or not to exercise all, some or none, of their legally guaranteed powers to raise revenue. The most fundamental legal question to be addressed is whether the assignment of revenue-raising powers should be codified in a fiscal constitution, or whether the composition of taxing powers across government levels should be the result of some of the process, such as competition within, and between, different levels.

Again, similar to the assignment of services provision, revenue assignment can be unique, in which case each level of government is assigned taxing powers that other levels of government do not possess. For example, in Australia, the national government has full constitutional authority over the raising of the income tax, excise tax and import

duties – three important sources of the national tax system. The dominance of the national government leaves state governments the powers to collect revenue from stamp duties, payroll tax and some other relatively small-revenue-generating taxes. Moreover, the assignment of taxing powers to the Australian states is not constitutionally defined – the constitution just indicates what the state cannot tax. It should be noted that the Australian High Court’s broad interpretation of excise under Section 90 of the Constitution excludes states from imposing consumption taxes. In addition, in Australia, the states have never relinquished their constitutional right to levy income taxes.

Tax assignment can also be shared, in which case a taxing power is shared across different levels of government. SNGs have adopted the practice of piggybacking either legislatively (where SNGs tax bases are defined in national government legislation) or administratively (where the national government taxing authority collects tax on behalf of SNGs). Revenue collected by national government from its tax bases may also be “shared” with lower level governments. For example, the income tax sharing in Australia was introduced under Prime Minister Malcolm Frazer (from 1975 to 1983) and the Goods and Services Tax introduced under Prime Minister John Howard (since 2000). While having the appearance of “tax assignment”, revenue sharing is often just a formalised grant structure - a means by which national governments provide funds to its lower levels of government without giving them the authority to set tax rates and bases.

### 2.3.3 Intergovernmental financial transfers

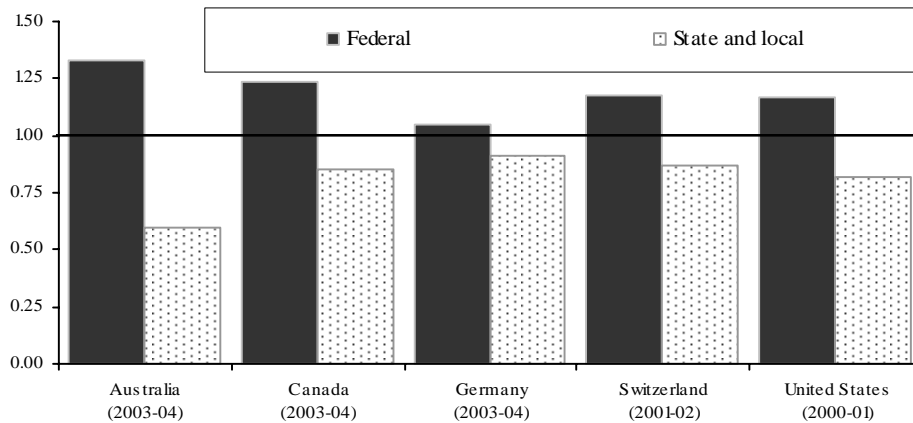
Tax assignments across the levels of government of a federation usually result in some level of a mismatch between spending responsibilities and revenue-raising powers for SNGs. In this circumstance, intergovernmental fiscal transfers from one level to other levels of government are needed to correct this “vertical fiscal imbalance”<sup>3</sup>. Different

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<sup>3</sup> Vertical fiscal imbalance is generally defined as “a mismatch between the revenue-raising powers and expenditure responsibilities of each level of government, where a shortfall in revenue for one level of government (typically the regional level) is made up for by grants funded from the surplus revenue of the other (typically the central government)”. (WA’s Department of Treasury and Finance, 2006, p.11.)

federations have experienced different degrees of vertical fiscal imbalances between the national government and the SNGs in aggregate as presented by Figure 2.1.

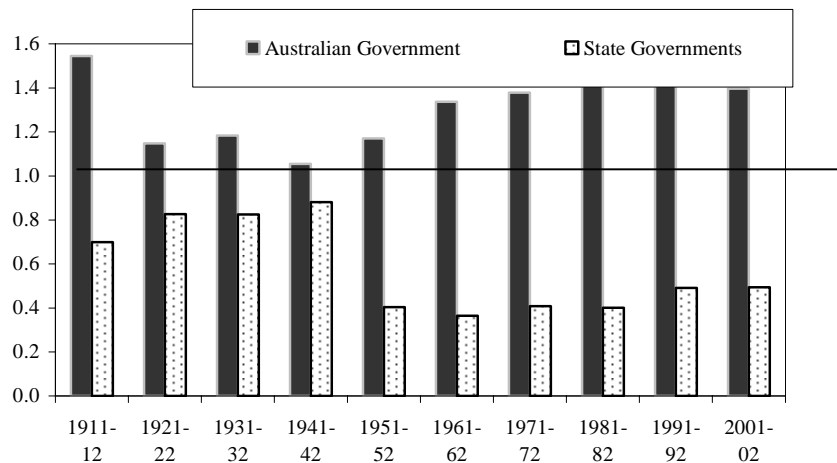
FIGURE 2.1  
VERTICAL FISCAL IMBALANCES  
Ratio of Own-sourced revenue to Retained revenue



Source: Western Australia's Department of Treasury and Finance, (2006, p.11).

In addition, the degree of fiscal imbalances may also vary within the same federation across years. In Australia, the extent of vertical fiscal imbalance declined from Federation in 1901 to World War II, and then increased dramatically after World War II.

FIGURE 2.2  
VERTICAL FISCAL IMBALANCES, AUSTRALIA  
Ratio of Own-sourced revenue to Retained revenue



Source: Western Australia's Department of Treasury and Finance, (2006, p.12).



Related to the fundamental question of vertical fiscal imbalance is the issue of how fiscal transfers should be designed. In this regard, the first-order issue concerns the share of general purpose (or unconditional or untied) transfers relative to specific purpose (or conditional or tied) financial transfers<sup>4</sup>. The second-order issue concerns the question of whether intergovernmental transfers should be the subject of “fiscal equalisation” across all governments for a given tier of politics (henceforth, “horizontal fiscal equalisation”).

TABLE 2.1  
GRANTS TO THE STATES FROM THE COMMONWEALTH GOVERNMENT  
AUSTRALIA, 2002-03

Items	\$m	Per cent
<b>Grants provided to states for general purposes</b>	<b>31,876</b>	<b>60</b>
GST payments	29,380	
Budget balancing assistance	1,741	
National Competition Policy payments	740	
Special Revenue Assistance (to the ACT)	15	
<b>Grants provided to states for specific purposes</b>	<b>21,650</b>	<b>40</b>
Specific purpose payments “to” the states	15,827	
Specific purpose payments “through” the states to other institutions	5,491	
Specific purpose payments direct to local government	332	
<b>Total</b>	<b>53,526</b>	<b>100</b>

Source: Garnaut and FitzGerald (2002, p.40, Table 3.1).

Table 2.1 presents relative shares of total unconditional grants and conditional grants in total fiscal transfers from the Commonwealth Government to the states in 2002-2003. It is evident that, in Australia, the allocation of the GST is treated as unconditional grants to the states because of the fact that the states can make their own decisions over the use of revenue from the GST without any discretion from the Commonwealth

<sup>4</sup> Within these two broad types, there are some variations of types of grants. First, conditional grants can be subdivided into: (i) lump-sum grants and (ii) matching grants. For the first subdivision, a fixed sum of money is received and a recipient needs to spend money on designated areas. On the other hand, matching grants depend on a fiscal capacity of a jurisdiction to “match” funds transferred from high-tier government. It is to say, the amount of matching grants will depend on how much money local jurisdictions spend on a particular service. Second, unconditional grants can also be subdivided into two different types: (i) a lump sum and (ii) effort-related grants. While the first subtype is clear, the second requires the judgement from the national government about the “effort” of SNGs in fiscal activities.

Government. In addition, in the case of Australia, grants for general purposes account for a larger share in total grants from the federal government.

In Australia, a comprehensive approach to horizontal fiscal equalisation is adopted by the Commonwealth Grants Commission when calculating the share of untied Commonwealth funds allocated to the states. Basically, each state receives an equal per capita share of the Commonwealth's Goods and Services Tax, as well as the Commonwealth's untied hospital funding grants ("HFG"), which is then adjusted up or down for each state's fiscal needs. Garnaut and FitzGerald (2002, p.51) point to three categories of fiscal needs. *Expenditure needs* value the impact on state budgets from differences in the demand for, or costs of, services between states (e.g. due to socio-demographic and location characteristics). *Revenue needs* value the impact on state budgets from differences in assessed revenue-raising capacity between states (e.g. differences in assessed capacity to collect mining royalties). *Needs for specific purpose payment* ("SPP") offset differences between the states in their per capita level of Commonwealth Government provided special purpose payments. In short, positive "needs" are indicative of a state having below average "fiscal capacity" and the fiscal equalisation process compensates states with below average fiscal capacity by redirecting general purpose grants to these states, and away from states with above fiscal capacity. Based on this approach, Australia's share of Goods and Services Tax and hospital funding grants in 2002-2003 is shown in Table 2.2.

TABLE 2.2  
CONTRIBUTION OF NEEDS TO GRANT SHARES  
2002 - 2003 (\$ PER CAPITA)

		NSW	VIC	QLD	WA	SA	TAS	ACT	NT
Per capita share of GST pool	a	1,848	1,848	1,848	1,848	1,848	1,848	1,848	1,848
Need adjustments									
Expenditure	b	-48	-338	-69	357	29	457	30	6320
Revenue	c	-156	69	63	-225	336	579	272	148
SPPs	d	33	27	29	-176	-4	-10	-20	-465
Total	e=b+c+d	-171	-242	23	-44	361	1,026	282	6,003
Grant entitlement	f=a+e	1,677	1,606	1,871	1,804	2,209	2,874	2,130	7,851
Relativity	g=f/a	0.907	0.869	1.012	0.976	1.195	1.555	1.153	4.248

Source: Garnaut and FitzGerald (2002, p.52, Table 4.1).

For 2002–2003, “fiscal equalisation” meant that states with a “relativity” greater than unity received an above per capita share of the GST and untied hospital funding grant (i.e. Queensland, South Australia, Tasmania, Australian Capital Territory and Northern Territory), while states with a “relativity” below unity received below their per capita share of these funds (i.e. New South Wales, Victoria, Western Australia).

#### *The pool for fiscal transfers*

The size of the pool of funds for distribution to SNG is determined in one of three typical approaches (Bird, 2004). They are: (i) the ad hoc decision; (ii) a percentage of GDP; and (iii) the size of spending programs from all SNGs<sup>5</sup>.

*First*, the size of the pool is decided based on the ad hoc decision from the national government. As such, SNGs are uncertain how much they will receive from transfers. The problem with this arrangement is that it is easily affected by political manipulations and negotiations from “strong” localities. However, the advantage of this approach is that the national government can easily decide changes in the size of the pool at any time.

*Second*, the size of the pool of funds to be transferred may be defined as a given percentage of GDP. The advantage of this arrangement is that SNGs have a great chance to receive an increased amount of transfers over years if economic growth occurs. However, this approach is inflexible for the national government. In Australia, under the Hawke–Keating period (1983–1996), the “pool” of funds (financial assistance grants) was grown annually by a given percentage, typically less than growth in GDP (ensuring the benefits of growth for public revenues were mainly retained by the national government).

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<sup>5</sup> Schroeder and Smoke (2003) discussed this issue in a slightly different manner, focusing on: (i) ad hoc decision; (ii) cost sharing; (iii) using formula; and (iv) tax sharing.

*Third*, the size of the pool may depend on the spending programs submitted by SNGs. Within this approach, there are open-ended and closed-ended methods. While the open-ended method guarantees that all spending programs from SNGs will be covered by the national government, the closed-ended method sponsors the programs whose total amounts do not exceed the fund set aside by the national government for the specified purposes<sup>6</sup>. The strong point of this approach is that spending programs may be fully sponsored if the government has enough funds to do so. However, this approach incorporates some fiscal risk for the national government, since it has to cover all spending programs (to the open-ended method). Notwithstanding, the closed-ended method also carries risk – a risk that the program will not be delivered to an adequate level of services. Closed-ended allocations with conditions that the recipient government must meet are sometimes referred to as “unfunded mandates”.

In a multi-tiered government system, the national and state governments often prescribe the provision and standard of services that local governments provide in their respective jurisdictions. Prescription of standards for some local public goods and services by higher level governments act to downplay the local preferences in the provisions of local public goods and services and may distort the behaviour of local governments as they seek to maintain, or to increase, funding from higher level governments.

#### 2.3.4 The assignment of authority for public borrowings

Autonomy over public borrowings is also an issue in multi-tiered federal systems. Should SNGs borrow from domestic and/or international sources in their own right, or should this be the responsibility of the national government acting on their behalf?

In practice, four main approaches to SNGs’ borrowings have been catalogued (Ter-Minassian, 1996). These are: (i) sole reliance on financial market discipline; (ii) the

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<sup>6</sup> The current case for grants that are equalised in Australia involve a mixture of closed-ended allocation for spending programs (hospital funding grants) and tax sharing (states receive 100 per cent of the Commonwealth Government’s Goods and Services Tax).

cooperation among various levels of government to design and implement the borrowing policy; (iii) rules-based policy; and (iv) administrative regulations on SNGs' borrowings.

For the first mechanism, an open and well developed financial market is a prerequisite. Also, detailed fiscal information on revenues and expenditures of SNGs must be made available to the market and credit rating agencies working within the market. The market itself will decide whether or not the loans are given. This approach is only seen as practical and feasible when SNGs have significant assignment of taxing powers and the autonomy of SNGs' spending, as in some developed economies. Canada satisfies this approach because provinces have almost no constitutional and/or legal limits on their borrowings from domestic and overseas sources (Ter-Minassian, 1996). Cooperation between the national government and SNGs is the second approach to the assignment of authority for public borrowings. Australia, Denmark, Sweden and many other countries have adopted this approach. There is a negotiation between the national government and SNGs regarding the extent to which SNGs' borrowings can be made. However, SNGs play a very active role in this negotiation. The third approach, which is rules-based, provides a lesser degree of autonomy for SNGs' borrowings. The "Golden rule", i.e. the constraint that SNGs may borrow for investment purposes only, is a classic example of this approach. This rule is used by Germany and Switzerland. With its own strengths of transparency and straightforwardness, this approach also reveals the weakness of inflexibility in specific situations. The fourth approach, which involves direct and administrative controls, is the mechanism to provide the lowest level of the autonomy for SNGs' borrowings. Borrowings by regional governments must be used to finance capital expenses. In addition, the national government can set additional limits and constraints on SNGs' borrowings. In the United Kingdom, even though the administrations of Scotland, Wales and Northern Ireland have freedom to make their own spending decisions within the overall totals, in general, subnational borrowings are strictly subject to central approval. This fourth approach is sometimes common in developing nations where the IMF or World Bank imposes requirements on national governments' debt before providing loans.

## 2.4 Core first generation approaches to fiscal decentralisation

### 2.4.1 The assignment of service delivery responsibilities

The economic boundary of individuals' net benefits (benefits less costs) from the provision of public goods may extend beyond the political boundary of the host jurisdiction, in which case positive fiscal externalities are provided to residents of neighbouring jurisdictions. The economic boundary of individuals' net benefits from public goods may also fall within the formal political boundary of the government which provides them, in which case some residents within one jurisdiction receive a benefit which exceeds the costs they pay, while other residents within that jurisdiction receive a benefit that is less than the costs they pay. Finally, the economic boundary of a public good matches the political boundary of the government that provides it. *Prima facie*, only the final relationship reveals the presence of economic efficiency in providing public goods, the first two cases are inefficient.

“Core” first generation theory of fiscal decentralisation reveals the above relationship well. However, it does not represent a fully deterministic system for the efficient assignment of responsibilities across various levels of government for the provision of particular services. Only general “principles” are evident from the efficiency analysis under the first generation theory, with the notion of “fiscal equivalence” being an especially important concept. In general, five main principles of fiscal decentralisation may be deduced from “core” first generation theory.

*First*, pure nationally bounded public goods are more efficiently provided by the national government (Bird, 2000). For example, foreign policy, defence, immigration and international trade can be best formulated and implemented by the national government. Services should be provided by the national government when demand is at a constant level across the various subnational localities. In addition, centralised provision of public services also experiences a great benefit from economies of scales.

*Second*, based on the principle of fiscal equivalence and Oates' decentralisation theorem, the geographic boundaries of the diverse range of local public goods should align (as far as possible) with political boundaries of the second-tier governments (states) and the third-tier governments (local governments). SNGs are able to provide a range of services to local communities such as law, order and public safety, education, health policy, as well as very local issues such as the street lighting system, local sewerage, garbage collection, and local paper deliveries. Importantly, variations in the level of provision of public services across subnational regions provide a basis for partially redressing: (i) spill-over effects and (ii) congested effects.

*Third*, public provision of both pure "private" goods and impure SNGs' public goods and services should be based on the size of jurisdiction, and in accordance with local tastes and preferences (Shah, 2004). If the size of jurisdiction is considered, the principle of benefit matching is achieved because local citizens who receive benefits also bear costs. A system of fees and user charges may also be useful and effective for the purpose of cost recovery (McLure and Martinez-Vazquez, 2004). SNGs operate closely to local inhabitants so that they are the sole agents, who are in the best position to understand preferences, tastes and the amount demanded. Once the "benefit areas" can be established, local provision on the basis of cost recovery tailors local service provision to the demands of local people. This enhances economic efficiency. Related to this, local provision of public services may also result in experimentation, and then, innovation, to promote efficiency in public policy for the entire economy (Oates, 1999). This suggests that devolution may also have "dynamic" efficiencies.

*Fourth*, the assignment of responsibility for the various types of service delivery must be transparent and clearly understood and agreed by all parties<sup>7</sup>. Failure to do so results in the overlapping of publicly provided services. Clear assignment of responsibility for service provision limits co-sharing responsibilities, where more than one level of government gets involved in the same areas of spending (Martinez-Vazquez,

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<sup>7</sup> The origin of the third type of argument derived from public choice theory – especially the notion of fiscal illusion and the flypaper effect (Turnbull, 1998).

2001). Co-sharing, while sometimes avoidable, can lead to ambiguity which creates unnecessary coincidence in providing public services to local communities, and, in turn, negatively affects the efficiency of the spending programs. It may even be used to intentionally confuse the responsibilities of each level of government. This may result in the fiscal illusion – local citizens may misjudge the “true” benefits and costs of their government (Dollery and Worthington, 1999). Two effects associated with the notion of a citizen’s fiscal illusion are widely recognised (Turnbull, 1998). First, public spending is maintained at a greater level under fiscal illusion compared with perfect information – the overspending effect. Related to this is the “flypaper effect”, which is the prediction that intergovernmental grants from high level government usually stimulate more local spending than locally generated revenue. Clear assignment of responsibility alone does not necessarily overcome the problem of fiscal illusion<sup>8</sup>.

*Fifth*, the economies of scale of local production of goods and services, including the related issues of local financial, managerial and administrative capabilities, should also be considered. This is particularly important for developing economies. As such, asymmetric spending assignment may be appropriate. That is, service delivery responsibility may be different across the same level jurisdictions when there are different economies of scale and administrative capacities across governments within the same level of SNGs. However, in reality, countries which adopt this type of spending assignment usually do so for political and/or geographical reasons (Joumard and Kongsrud, 2003).

In short, the first generation theory of fiscal decentralisation suggests that, in general, service provision responsibilities are best assigned to the lowest level of government that can meet the service responsibility efficiently (Bird, 2004). That is, the

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<sup>8</sup> The assignment must not generate inefficient signals in which one level of government has an incentive to over or under supply of services. Healthcare provision in Germany is an example. In Germany, the health fund from the national government is responsible for financing the costs of hospitals. The Landers (the first level of SNGs) finance hospital investment and decide hospital capacity. The municipalities (the second level of SNGs) are assigned to provide local healthcare services. In this context, the Landers have an incentive to expand hospital capacity to create local employment whereas the operating costs have to be met by the national government (Wurzel, 1999).



so-called “law of subsidiarity” is a simple summary of first generation theory. The law of subsidiarity states that economic performances of the government become more productive, efficient and effective if public services are provided by the lowest level of government possible (Martinez-Vazquez, 2001, p.12). Economic efficiency and accountability are essential features for SNGs’ fiscal autonomy in terms of service delivery. As such, efficiency and accountability are strongly linked to the autonomy of SNGs in fiscal matters, subject to the law of subsidiarity – first generation theory supports SNGs having the autonomy to decide the spending programs within their own jurisdiction. This also minimises the national interference into local spending programs through the requirements of SNGs’ accountability to those who pay taxes and charges. The efficiency of economic activities of SNGs is also enhanced because SNGs are in a better position to know where the money should be heading.

#### 2.4.2 The assignment of revenue-raising powers

The potential benefits of “efficient” tax assignment have been an important subject for consideration in first generation theory of fiscal decentralisation. In terms of the degree of decentralisation, the following assignments of revenue-raising powers represent a progressively decreasing level of SNGs’ fiscal autonomy (OECD, 1999): (i) SNG sets tax rate and tax base; (ii) SNG sets tax rate only; (iii) SNG sets tax base only; (iv) tax sharing arrangements with two typical different levels – SNG determines revenue-split, or the national government determines the split; and (iv) national government sets rate and base of SNG tax.

##### *Basic principles for taxing power assignments*

In an influential paper, Musgrave (1983) identified six fundamental principles for tax assignments: (i) taxes suitable for economic stabilisation should be national; (ii) taxes with unevenly distributed bases across jurisdictions should be central; (iii) personal taxes with a mobility of tax bases should be assigned to the national government; (iv) taxes with cyclically stable revenue should be assigned to SNGs; (v) SNGs should be assigned taxes with bases that are not easily mobile among jurisdictions; and (vi) benefit taxes,

users' fees and charges are relevant to any level of government. These six principles are discussed in turn below.

The first three principles concern taxes that should be assigned to the national government. Based on Musgrave's contention that there are three branches of public finance (stabilisation, distribution and allocation efficiency), fiscal decentralisation is primarily justified in terms of allocation efficiency. The *first* principle reaffirms this by assigning the economic stabilisation branch to the national government because it has responsibility for macroeconomics policy. Moreover, subnational stabilisation policies are likely to compromise stability-oriented policies by "leakage" outside individual SNGs, which would effectively diminish the national government's capacity to control aggregate demand. As such, personal income tax and corporate income tax are suitable for national governments - especially when income redistribution is a national goal. The *second* principle is related to unevenly distributed taxes such as the natural resources taxes. Natural resources are unevenly distributed in some particular jurisdictions. Political and social tensions can be avoided if revenue from these sources is centrally generated and redistributed to all regions. If not, jurisdictions with national resources may decide to provide local services at a lower revenue-raising burden. The *third* principle is related to revenue sources with mobile bases. The concern is that tax rate differentials between SNGs will cause inefficient movement of such bases across borders.

Principles four and five concern tax assignment fundamentals necessary to support SNGs. The *fourth* principle is designed to secure stable long-term sources of revenue for SNGs. Because of their relatively small fiscal size, SNGs' need for relative stable revenue flows is greater than that from the national government<sup>9</sup>. Stable revenue sources also assist with continuity of public service provision. The *fifth* principle is essentially the converse of the third principle – taxes with volatile mobile bases should be

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<sup>9</sup> Of course, there are other ways for SNGs to manage the revenue volatility issue. Governments could "sell" volatile revenue flow to a buyer who was prepared to exchange a stable revenue flow. Alternatively, cyclical accounts could be established which are drawn down by SNGs in recessions, and added to during booms.

national, and tax bases that are immobile and stable should be managed by SNGs<sup>10</sup>. Property and payroll taxes are two good examples. There is, however, a balance that this principle must strike with the second principle – for example, natural resources tax (tax with unevenly distributed bases) should be with the national government even when they generate stable revenue flow. The property taxes are obviously immobile but they may also be unevenly distributed across SNGs<sup>11</sup>.

The *sixth* principle concerns common types of government fees or charges which are efficient irrespective of whether imposed by the national government or SNGs. Each level of government can employ charges that link directly to the services provided. For example, driving licence fees and petrol tax can be used to finance a highway, but not for education. When services benefit all people, this type of charge is best administered by the national government. However, when the benefits are only directed to a particular group in a particular region, SNGs would be better placed to administer the charges.

All these principles are designed to ensure that taxation and revenue-raising powers across all levels of government do not distort economic choices of non-government entities and individuals. However, they are also derived from the static welfare analysis – tax competition between jurisdictions is generally not supported because it, of necessity, distorts private decisions. There is no clear and explicit consideration given to the issue of whether the dynamic benefits for fiscal competition between SNGs generally, and tax competition specifically, outweigh the “static” welfare losses from the distortions to individual decisions resulting from tax competition.

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<sup>10</sup> Parry (2003) shows that competition among various subnational governments may lead to a suboptimal level of capita taxation when governments ignore the “external benefits” of capita flight to other regions.

<sup>11</sup> Musgrave (1983) suggested a reconciliation for the above two contrasting views – the national government should only impose an “excess” rate whereas “normal” rates are for SNGs on the same tax bases which could be centrally determined. As such, jurisdictions with rich natural resources are only willing to join the federation once their property of natural resources is secured.

### 2.4.3 Intergovernmental fiscal transfers

The assignment of responsibility for service deliveries and taxing powers across the various levels of government is the first-order (or constitutional level) issue in first generation theory. Fiscal transfers between levels of government are essentially a second-order (or non-constitutional level) issue in the sense that they are conditioned by the degree of vertical fiscal imbalance under the prevailing assignment of revenue and expenditure responsibilities (or implied by the constitution). Nevertheless, the literature on fiscal federalism that investigates fiscal transfers, usually from the national government to lower tiers, is extensive and detailed because the potential for formalised analysis of fiscal transfer issues is greater than in the case of the more fundamental issues concerning the assignment of fiscal powers.

The essential point concerning fiscal transfer in first generation theory is that transfers are either “conditional” (tied) or “unconditional” (untied) and that each has different consequences for the fiscal autonomy of SNGs (Oates, 1972). While unconditional grants provide a higher degree of fiscal autonomy of SNGs, conditional grants actually limit this autonomy. Fiscal autonomy of SNGs in terms of fiscal transfers is generally enhanced when the majority of grants from national government to SNGs are in the form of unconditional grants. That is, unconditional grants are generally supported by first generation theorists ahead of “conditional” grants (Bird, 2004) unless, of course, tied grants are required to correct for market failure or inter-jurisdictions spill-over effects.

Boadway (2003) argued that while fiscal equity is matched for unitary countries when their social preferences are the same across regions, the notion of fiscal equity is more or less ambiguous in federal countries because national governments and SNGs use a mix of fiscal policies to achieve a mix of redistribution goals. Every citizen is exposed to at least two distinct sets of fiscal distribution – one from the national government and another from SNGs. When there are differences in taxing capability between jurisdictions, and, as a result, differences in provision of services to the given standard

among different regions, horizontal fiscal imbalance arises. Imbalance in the fiscal capacity of SNGs at the same level is associated horizontal fiscal inequity. This phenomenon can be caused by differences in local wealth, natural resources, per capita tax capacity, and differences in spending obligations and in the cost of providing public services (Martinez-Vazquez, 2001). The main tool for achieving equity through intergovernmental fiscal transfers is the mechanism “fiscal equalisation”. Fiscal equalisation is a process which reduces fiscal disparities among subnational regions through financial transfers (Collins, 2001). The four main reasons for fiscal equalisation are identified in Schroeder and Smoke (2003): (i) to fill the fiscal vertical gap between national government and SNGs in aggregate; (ii) to equalise horizontal fiscal capacity for governments in the same level; (iii) to internalise fiscal externalities within SNGs; and (iv) to correct the administrative weaknesses of SNGs.

#### *Fiscal equalisation*

The first generation theory of fiscal equalisation is the most developed strand of the economics of fiscal decentralisation. Perhaps the most formal developments in this field concern the question of fiscal equalisation arrangements.

Economists first came to this issue of fiscal equalisation because of a concern over resource misallocation resulting from one jurisdiction, say a “rich” state, subsidising another jurisdiction, say, a “poor” state, through equalisation arrangements. A seminal study in this regard is “A Note on Grants in Federal Countries” by Scott (1950). The specific concern being that, as labour is mobile, fiscal equalisation will have the effect of inducing residents to low productivity (i.e. poor) jurisdictions and away from high productivity (i.e. rich) jurisdictions, causing a decline in the value of national output. However, fiscal transfers from one government to another have some important differences to the case where governments subsidise private enterprises. *First*, fiscal equalisation is, in effect, a transfer between states where all states pursue equity goals within their jurisdiction by providing some individuals with a positive fiscal residuum, or net fiscal benefits (value of public benefits consumed less taxes paid to some individuals) and a negative fiscal residuum, or negative net fiscal benefits to other individuals.

*Second*, in addition to equity issues, the “local” character of subnational public goods has potentially adverse congestion effects in very populous and high productive (rich) jurisdictions which can reduce the value of public goods in those jurisdictions. Moreover, services provided by SNGs may have benefits (or costs) that are not confined to the geographic area of the jurisdiction that provided the service. Once these “fiscal externalities” factors were recognised, it was no longer obvious the “subsidies” from one (or many) government(s) to other governments necessarily lead to a misallocation of resources. Under certain circumstances, such transfers may even be efficiency enhancing.

Given the objectives of this thesis, there is no place in this study for a comprehensive review of the extensive fiscal equalisation literature. Nevertheless, some observations of fundamentals appear to be warranted.

Perhaps the first true classic study in this field after Scott was “Federalism and fiscal equity” by Buchanan (1950). Although equity is the focus of the proposition that “like individuals” in different jurisdictions should receive “like treatments” (Buchanan, 1950, p.588), it has an important implication for efficiency too. If all jurisdictions of a given level provide greater positive net fiscal benefits to the poor, but do so to different degrees, then inefficient migration will result: rich citizens will have an incentive to relocate to the jurisdiction where their negative net fiscal benefit will be the least and poor citizens will have an incentive to relocate to jurisdictions with the highest positive net fiscal subsidy for the poor. If fiscal equalisation transfers result in the like treatment of like individuals across different subnational jurisdictions in a federation, then, “like” rich people will face the same negative net fiscal subsidy in all jurisdictions, and “like” poor people will also face the same positive net fiscal subsidy in all jurisdictions. As such, there is no fiscally induced incentive resulting for intergovernmental transfers to distort migration. Of course, this is predicated on the view that all SNGs use fiscal powers to achieve the same vertical fiscal equity goals (i.e. redistribution of income).

Buchanan’s equity approach sets aside the influence of congestion in local public services and the effects of spill-overs. These issues were investigated more by scholars,

such as Wagner and Buchanan in: "An Efficiency Basis for Federal Fiscal Equalisation". Buchanan and Wagner pointed out that, for any constant level of public facility, an addition of one more consumer will reduce the quantity of consumption units available to other people (Buchanan and Wagner, 1980, p.244). This is because local public goods may be subject to congestion. Furthermore, given the public good character of service provision, people who move to the high productive (i.e. richer) state "exerts an external economy on residents of that state and an external diseconomy on residents of the state that he leaves" (Buchanan and Wagner, 1980, p.245). However, when SNGs provide impure public goods, a point is reached where the highly productive state faces an external diseconomy – the benefit to all residents from tax-side externalities (i.e. the reduced average cost of public good provision) is swamped by congestion costs. In such circumstances, fiscal equalisation may enhance efficiency by preventing inefficient migration from poor to rich states. The important contribution of Buchanan and Wagner is that they identify the circumstances when, from a pure resource allocation perspective, fiscal equalisation is economically efficient.

In addition to the fundamental issues of congestions and other fiscal externalities such as spill-overs (i.e. economic consequences of the activities of a SNG that spill outside the border of that SNG), a number of other important "complications" have emerged in the theory of fiscal equalisation. These include the efficiency implications including the correct treatment in fiscal equalisation processes of economic "rents" (Boadway and Flatters, 1982, p.621) and differences in the "unit cost" of services in different SNGs. When economic rents from mineral activities differ between states and they are taxed by a subnational government that is subject to fiscal equalisation, should those rents collected by the SNG be equalised (effectively allocating rents on a per capita or some other basis across all equalised subnational jurisdictions) or should the SNGs in which the rents are generated keep the taxes from that rent? Likewise, in SNGs where the unit costs of inputs required to produce local public services are above those for other SNGs, should the high-cost SNGs be subsidised for their higher unit costs through the fiscal equalisation process?

In regard to rent analysis, Boadway and Flatters (1982) demonstrated that fiscal equalisation represents an efficiency enhancing mechanism. Individuals will choose to reside in the jurisdiction that provides them with a highest net benefit, but when there are location specific rents, migration equilibria will not equate with the point where marginal products are equal across jurisdictions (i.e. the efficient point), but where average products are equal. As in the case of congestion, fiscal equalisation provides one mechanism by which migration distortions due to location specific rents can be eliminated.

Petchey (1995) has also investigated the interaction between equalisation in the presence of both rents and unit cost differentials. His economic simulations illustrate that, in the presence of diverse economic rents and diverse unit costs across regions, fiscal equalisation processes which equalise for unit cost can enhance economic efficiency. Based on a simplified two states model, he demonstrated that, in the absence of economic rents, efficient fiscal equalisation will not transfer resources from the “low” cost state to the “high” cost state. However, when a state has high costs in conjunction with low economic rents (all determined relative to the other states), efficient fiscal equalisation transfers will transfer resources from the low cost/high rent state to the high cost/low rent state.

Finally, it should be noted that there is a basic issue concerning what exactly should be equalised – the capacity of governments for providing services (i.e. fiscal capacity) or the actual fiscal performance of a government (i.e. fiscal performances). The literature tends to implicitly focus on fiscal performance (e.g. Scott 1950; Buchanan 1950, Buchanan and Wagner 1970) but in practice, it is generally fiscal capacity that is equalised<sup>12</sup>.

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<sup>12</sup> Russell Mathews (1980), Richard Musgrave (1980) and Antoni Zabalza (2003) have distinguished five main types of models of fiscal equalisation: (i) the fiscal capacity equalisation; (ii) the fiscal potential equalisation; (iii) the pure incentive model of fiscal decentralisation; (iv) the actual performance equalisation; and (v) the Mathews model. The emerging second generation theory of fiscal decentralisation considers some aspects of capacity equalisation.

*First*, Mathews raised two main aspects of fiscal capacity equalisation: equalisation of revenue-raising capacity and equalisation of expenditure needs, similar to that which is applied in Australia (see Section



#### 2.4.4 Subnational borrowings

SNGs' access to the financial market has been a controversial issue for some time – especially in the literature relating to developing countries (Ter-Minassian, 1996). Compared with the national government, some argue that SNGs have poor accounting and disclosure standards and rely on the national government to bail out a debt crisis when there is a conflict of interests between lenders and borrowers. However, there are three main grounds to support SNGs' borrowings (World Bank, 2004). *First*, SNGs' investment expenditure entirely financed from current tax revenue is inappropriate for equity reasons. Investment brings benefits for future generations so that they should be, at least partially, responsible for their spending. *Second*, the mismatch between revenue and expenditure evident in most federations also requires SNGs' borrowings in particular years as subnational economies fluctuate. *Third*, and most importantly from the perspective of first generation theory, borrowings from SNGs may foster political accountability. In the absence of significant intervention from the national government, financial markets will send a clear signal of SNGs' performances by providing borrowings or blocking them access into the financial markets. As a first approximation in which interjurisdictional fiscal externality is ignored, first generation theory suggests that SNGs should have some responsibility for the management and service of their own debt, but in conjunction with transparent accounting arrangements for public sector finances.

In practice, one of the main questions of interest to scholars is the extent of the budget constraint to be imposed on SNGs by a national government (Ter-Minassian,

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2.3.3). *Second*, the fiscal potential model equalises the fiscal potential levels for SNGs to achieve their own goals). *Third*, the pure incentive model of fiscal equalisation is done to give an incentive to subnational regions by providing matching grants to them to raise their tax and service levels. This model of fiscal equalisation may have redistributive effects with respect to fiscal capacity and/or fiscal need of various regions. *Fourth*, the equalisation is demonstrated by the national government by equalising actual per capita dollar outlays on subnational services in all subnational regions and taking into account the difference of needs of various regions. *Fifth*, the Mathews model has developed on the foundation of the fiscal capacity model of fiscal equalisation and explored at various specific situations, such as: taking into account (i) a revenue effort adjustment factor or (ii) a revenue capacity equalisation factor.

1996, p.156): a soft budget constraint and a hard budget constraint. A hard budget constraint means that the national government will not bail out SNGs for excessive debts under any circumstances. This approach requires the national government to provide a clear message to the market – no bailout policy for SNGs’ debts. In this case, SNGs have no “incentives” to overborrow and fail to meet financial responsibility. On the other side, soft budget constraint means, to some extent, subnational debts are implicitly guaranteed by the national government. This approach has usually been adopted in countries with high levels of fiscal transfers. In this case, local regions are very much dependent on outside-sourced revenue, not their own-sourced revenue<sup>13</sup>.

## 2.5 An emerging second generation approaches to fiscal decentralisation

Oates’ Decentralisation Theorem has laid a strong foundation for the study of fiscal federalism and decentralisation, all of which developed from the general literature on public economics. The result was what is now called the first generation theory of fiscal decentralisation. However, towards the end of the last decade of the twentieth century, a “second” generation theory of fiscal decentralisation has begun to emerge, which draws on ideas from outside the public finance literature. As Oates (2005, p.356) has highlighted, this second generation began investigating fiscal decentralisation by drawing on notions from the theory of the firms, the economics of information, principal-agent problem, and the theory of the contract.

Two main considerations underlie the development of the second generation theory (Oates, 2005, p. 356). The first concerns the political processes and the behaviour of political agents in which participants may have their own objective functions. Government officials may not need to seek the common good as assumed in the first

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<sup>13</sup> In order to limit a possible weakness of the guarantee for subnational debt repayment, many restrictions have been imposed such as no borrowings, borrowings for limited purposes, and ceiling amount control (Rodden, 2000). While these soft constraints are moderately flexible, the approach experiences the problem of the commons. The commitment to bailouts for subnational debts by national governments may bring fiscal benefits for SNGs as an entity; however, it needs not benefit the residents of subnational regions when this is achieved by reducing the financial accountability of SNGs and damaging the national economy. It is however, very costly for the economy as the whole.

generation theory, rather, they may not act to maximise the welfare of their constituencies. This consideration has obvious links to public choice theory – which was the main “non-core” stream of the first generation theory of fiscal decentralisation. The second concerns the issue of asymmetric information and political agents. Some particular participants have more knowledge of local preferences and tastes and cost structure compared to the others. To examine these influences, fiscal federalism is examined from the perspective of a framework on industrial organisation and microeconomic theory. Much of this work by the second generation theorists concerns the issue of balance between the degree of fiscal centralisation and fiscal decentralisation. While the general support for fiscal decentralisation in the first generation theory is acknowledged, the dangers of going too far in the fiscally decentralised system are a feature of the second generation theory.

The emerging second generation theory has been characterised in terms of two motivating issues: incentives and knowledge (Garzarelli, 2004, p. 11). Both motivations have contributed to an increased economic efficiency: incentives are required for SNGs to do a better job to avoid outward migration of people and firms; and knowledge of local preferences and tastes is crucial to achieve economic efficiency when local public goods and services are provided by SNGs. The contributions of the second generation theory are mainly drawn from the economics of transaction cost, incomplete contracts and principal-agent perspectives (Garzarelli, 2004). Leading studies, that have been classed as parts in the emerging second generation theory, are associated with Weingast (1995), Seabright (1996), Lockwood (2002) and Besley and Coate (2003).

Weingast (1995) introduced the notion of market preserving federalism to investigate how competing jurisdictions create incentives for credible commitment and lower transaction costs. Assuming a hierarchy of governments (at least two levels of government rule the same land and people) with autonomy of each level of government institutionalised, Weingast modelled the market preserving federalism in which: (i) SNGs have regulatory responsibility over the economy; (ii) a common market is ensured so that SNGs are unable to prevent trade in goods and services from other jurisdictions; and (iii)

SNGs face a hard budget constraint. The main findings, for the UK and the US are: (i) federalism provides the political basis for the common market; (ii) the prohibitions against the national government's exercise of economic regulation greatly reduced the government's political responsiveness to interest groups; and (iii) the prohibitions on internal trade barriers allowed entrepreneurs, new enterprises, and new economic activities to emerge in new areas that could outcompete interests in older areas (Weingast, 1995, p.25).

In contrast, Seabright (1996) introduced the notion of “incomplete contract” to the analysis of fiscal federalism. The author presents elections as incomplete contracts in which some information, in the “contract”, is unverifiable. Political accountability can be an organisational motivation for decentralisation. In contrast, centralisation could be more preferred when the mechanisms associated with incomplete contract provide greater scope for policy cooperation between different levels of government to internalise interjurisdictional fiscal externalities. As a consequence, the decision on preferred mechanism depends on the relative magnitude between benefits from internalisation of interjurisdictional fiscal externality and costs arising due to a reduced accountability under fiscal centralisation.

The starting point for Lockwood (2002) and Besley and Coate (2003) is Oates' Decentralisation Theorem, but these authors correctly pointed out that goods and services provided by the national government are not necessarily homogenous, as Oates had originally assumed<sup>14</sup>. Once it is recognised that national provision of public goods and services is possible on a differential basis between regions, a different fiscal framework is needed from that developed by Oates. In their frameworks, output provided by the national government consists of locally-designed outputs which are determined by the central legislation. This is feasible because the national government body always consists of locally elected representatives from local regions. Nevertheless, the broad thrust of

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<sup>14</sup> It should be noted that public choice economists such as Brennan and Buchanan had previously objected to this.

Oates' findings on the efficiency of decentralised fiscal arrangement is reproduced in models in which interjurisdictional externalities are small and regions are heterogeneous.

Another contribution to second generation theory of fiscal decentralisation is evident from recent studies of Australian fiscal equalisation by Petchey and Levchenkova (2002 and 2004), which pointed out that equalisation grants are not determined exogenously. This is because equalisation is undertaken with respect to a fiscal standard that is determined in relation to actual fiscal behaviour. In this circumstance, there is an incentive for the states to behave strategically in their fiscal decisions. This provides the basis for an "equalisation game" which takes into account states' strategic behaviour and provides a basis for developing proposals which enhance efficiency.

The generally accepted view now is that the presence of the second generation theory of fiscal decentralisation classifies, rather than contradicts, the validity of the first generation, including the Decentralisation Theorem:

"although the models under the second generation theory umbrella differ in fundamental ways from the first generation theory, many of them produce a trade-off between centralisation and decentralisation that is in a somewhat similar spirit to their earlier counterparts" (Oates, 2005, p. 357).

Finally, a second generation of public choice theory is also emerging. This is mainly associated with the work of Richard Wagner (2007), which shifts attention away from "tiers" of government, and assignment of powers and responsibilities across tiers, to focus on the competing "polycentric" character of government. This is associated with a focus on the process by which diverse centres of government respond to demands for publicly provided services in a manner that is integrated within the market economy.

Wagner's basic view on the evolutionary character of polycentric government is more important than the hierarchical aspect of government in which the questions of which functions to be provided at the national and subnational levels of government are

addressed (Wagner, 2007, p.164-5), as it is in the conventional approach to fiscal decentralisation. The process by which governments respond to emerging demand from the community is directly linked to the capacity to raise their own revenue in an innovative way. Moreover, the focus is on government “enterprise”, in which some government units fulfil the role of public service producers and some take on the role of the articulators of the public services (Wagner, 2007, p.166).

## 2.6 Concluding remarks

The chapter provides a very general and brief overview of the main insights from the literature on fiscal decentralisation. It reveals the findings from the first generation theory, as represented by seminal studies from Musgrave, Tiebout, Olson and Oates, “fiscal equivalence”, population sorting, and fiscal decentralisation theorem. It also points to the public choice stream of first generation theory and an emerging second theory of fiscal decentralisation, which mainly concerns the efficiency trade-off between fiscal centralisation and decentralisation.

The key point to note is that the notion of decentralisation plays a very important role in the theory of fiscal federalism; irrespective of whether core or non-core first or second generation theory is being considered, decentralisation is the primary issue of concern. For the purpose of this dissertation, one important implication of this overview is that any empirical testing of this theory requires a “sound” measure of fiscal decentralisation. That is, there must be a measure of fiscal decentralisation that reflects important features of fiscal theory. The development of such a sound measure is the subject of the next four chapters of this study.